

Notice of Allowability	Application No.	Applicant(s)	
	10/632,585	KABUTO ET AL.	
	Examiner	Art Unit	
	Vincent E. Kovalick	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to applicant's amendment dated 8/11/06.
2. ☒ The allowed claim(s) is/are 1-22 (re-numbered 1-22).
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>5/6/04</u> 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. <input type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
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DETAILED ACTION

Response to Amendment

1. This Office Action is in response to Applicant's Amendment dated August 11, 2006 in response to USPTO Office Action dated April 21, 2006.

The amendments to claims 1, 3 and 5 are sufficient to place the application in a condition for allowance as set forth hereinbelow.

Allowable Subject Matter

2. Claims 1-22 are allowed.

3. The following is an examiner's statement of reasons for allowance:

Relative to claims 1, 3 and 5 the major difference between the teachings of the prior art of record (USP 6,259,198, Yanagisawa et al.; USP 6,154,187, Kim and Pub No. US 2002/0036601, Huang et al.) and that of the instant invention is that said prior art of record **does not teach** a display apparatus wherein the select period is divided into a plurality of sub-periods, wherein each of the driving voltages is applied in each of said sub-periods and at least one of the said driving voltages has a gray-scale level corresponding to a level of an input video signal, wherein a picture can be displayed with a gray-scale corresponding to the number of said divide sub-periods and to a gray-scale size determined by said driving voltage.

Relative to claim 6, the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art of record **does not teach** a display apparatus comprising a switch for outputting a first driving signal generated by

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said driving signal generator during a first period for the select period determined by an output period of the select voltage generated by said scanning driver and outputting said second driving signal generated by said driving signal generator during a second period for the select period determined by an output period of the select voltage generated by said scanning driver; and a D/A converter for converting said first and second driving signals output by said switch into analog signals and for applying the analog signals to said signal electrodes as first and second driving voltages respectively

Regarding claim 19, the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art of record **does not** teach a signal driver employed in a display apparatus comprising: an n-bit gray-scale signal input terminal for inputting an n-bit gray-scale signal wherein $n \geq 8$; a sub-period select signal input terminal for inputting a sub-period specification signal for specifying one of m sub-periods obtained as a result of dividing a select period of said scanning electrodes wherein $m \geq 2$; an output circuit for outputting k voltage levels where $k \leq$ (the nth power of $2/m$); and a signal converter for selecting one of said voltage (or current) levels on the basis of said n-bit gray-scale signal and said sub-period specification signal.

Relative to claim 20, the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art of record **does not teach** a display apparatus comprising spacers placed between said rear substrate and said front substrate to create a space between said rear substrate and said front substrate; wherein, each specific one of said scanning electrodes is connected to two rows each comprising a group of specific electron emission devices; said two rows each comprising a group of specific electron emission devices are connected respectively to two different ones of said

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signal electrodes; and each of said spacers is located substantially at the center of said two rows each comprising a group of specific electron emission devices on said specific scanning electrode.

Response to Applicant's Remarks

4. Applicant's remarks relative to claims 1, 3 and 5 are rendered moot in light of the allowance of said claims 1, 3 and 5.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent No.	6,472,803	Yoshizawa et al.
U. S. Patent No.	4,481,511	Hanmura et al.
Pub. No..	US 2002/0130824	Huang et al.
Pub. No.	US 2002/0036460	Takanaka et al.
Pub. No.	US 2002/0018032	Weitbruch et al.


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To Respond

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent E. Kovalick whose telephone number is 571-272-7669. The examiner can normally be reached on Monday-Thursday 7:30- 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Vincent E. Kovalick
September 19, 2006


BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600